

Claims

What is claimed is:

- 5 1. A method of producing nanophase WC powder by vapor phase reaction, which comprises the steps of preparing a precursor including tungsten; producing gas by vaporizing or sublimating said precursor; carbonizing said gas in the atmosphere without oxygen while maintaining pressure below atmospheric pressure; and condensing said carbonized gas.
- 10 2. The method of producing nanophase WC powder by vapor phase reaction according to Claim 1, wherein said precursor, at least one, is selected from the group consisting of tungsten hexoxide, tungsten chloride, and tungsten hexacarbonyl.
- 15 3. The method of producing nanophase WC powder by vapor phase reaction according to Claim 2, wherein said atmosphere without oxygen comprises at least one of CO, CO₂, CH₄, C₂H₄, He, Ar, N₂, or H₂, or the mixture thereof.
- 20 4. The method of producing nanophase WC powder by vapor phase reaction according to the Claim 3, wherein said step of carbonization is carried out at the temperature of 500~1,500°C.
- 25 5. The method of producing nanophase WC powder by vapor phase reaction according to the Claim 4, wherein said carbonized gas is condensed under the pressure below atmospheric pressure.
- 30 6. The method of producing nanophase WC powder by vapor phase reaction according to the Claim 5, wherein said carbonized gas is condensed by absorbing the same onto the surface of a cooler at the temperature below zero.
7. The method of producing nanophase WC powder by vapor phase reaction according to Claim 2, wherein said atmosphere without oxygen comprises at least one of CO, CO₂, CH₄, C₂H₄, He, Ar, N₂, or H₂, or the mixture thereof.

8. The method of producing nanophase WC powder by vapor phase reaction according to the Claim 1, wherein said step of carbonization is carried out at the temperature of 500~1,500°C.
9. The method of producing nanophase WC powder by vapor phase reaction according to the 5 Claim 1, wherein said carbonized gas is condensed under the pressure below atmospheric pressure.
10. The method of producing nanophase WC powder by vapor phase reaction according to the Claim 1, wherein said carbonized gas is condensed by absorbing the same onto the surface of a cooler at the temperature below zero.

10